MILKBOTTLES

By JOHN M. NEFF, '28

DID you ever stop to think what condition your milk would arrive in if it were not for the well-known bottle? What a chance for the spread of disease if the milkman brought his product to your door in a large container and poured it into your kettle or other vessel. Of course the milk could be delivered in metal containers, but this method would present the chance of corrosion and subsequent pollution. The glass bottle seems to be the one nearest perfect solution to the problem.

The Winslow Glass Company at Columbus, Ohio, makes a specialty of milk bottles, and so their methods will serve to illustrate the manufacture of bottles in general and milk bottles in particular.

In the modern factory the human factor is reduced almost to zero by the use of machinery of advanced design. The day of the red-faced, deep-chested blower is past; so is the terrific heat involved in his day. Today, as one enters such a factory the only thing that reminds the observer of the heat is the string of red hot bottles moving slowly, by machinery, to the tempering oven.

The first step in the making of bottles is to charge the melting furnace. The charge consists mainly of a fine grade of sand, but such things as sulfur, lime and other substances are added to give the glass its color and to prevent the formation of air bubbles. This charge. together with scrap glass gathered up from the streets and alleys, is put in the melting furnace. This, in a fair sized factory, is a covered tank 20 x 30 feet.

From the melting tank the glass runs into the refining furnace. Here the temperature is maintained at about 2300 degrees in order to oxidize all the impurities.

From this tank a stream about an inch in diameter is allowed to run out of a spout much the same as a water hydrant. This stream of viscous glass is automatically cut off in pieces about seven inches long for pint bottles. These pieces fall, by gravity, into the openings of "blank" molds. These molds, perhaps fifty in number, are arranged around the edge of a wheel. This wheel is timed so that as a piece of glass is cut off there is an empty mold awaiting it.

When the "blank" mold has received its "filler" and moved away from the spout, an air nozzle automatically fits itself onto the mold and blows the "blank." A "blank" is merely the neck and mouth of the bottle. The mold is moved about halfway around the circumference of the wheel when it is automatically opened and the "blank" is allowed to fall into the bottle mold. In the same manner that the "blank" was blown, the remainder of the bottle is made. It is in this operation that the name of the purchaser is put on the bottle. This is accomplished by having a special mold on the inside of which are cast the desired figures.

The bottle, now full blown but in the mold, again moves about halfway around the wheel as did the "blank." By this time, though red hot, the bottle can hold its shape. The mold is opened, dropping the bottle on a slowly moving belt. This belt carries the bottle thru the tempering furnace, for if they were not tempered they would crack at a slight change in temperature.

The tempering furnace is about 150 feet long. At the end where the bottles enter the temperature is maintained just below the melting point of the glass. The temperature tapers off gradually down the length of the furnace. The bottles are moved thru this furnace at the rate of about an inch in five minutes. When they appear at the cool end, they have cooled sufficiently to be handled. They are then packed in crates and are ready for shipping.